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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 4
Question Paper Code : UN499

KEY

1. C	2. C	3. C	4. D	5. C	6. B	7. C	8. B	9. C	10. D
11. C	12. A	13. C	14. B	15. B	16. B	17. C	18. D	19. B	20. B
21. A	22. D	23. B	24. A	25. D	26. D	27. D	28. A	29. B	30. B
31. B	32. C	33. D	34. D	35. D	36. A	37. C	38. D	39. C	40. A
41. D	42. C	43. A	44. B	45. C	46. Del	47. C	48. A	49. D	50. C
51. D	52. C	53. B	54. C	55. B	56. C	57. A	58. D	59. D	60. C

SOLUTIONS

MATHEMATICS

01. (C) To convert $4\frac{3}{4}$ to an improper fraction:

Number of quarters from the whole number part (4) = 4 × 4 = 16 quarters

Number of quarters from the fractional part $\frac{3}{4}$ = 3 quarters

Total quarters = 16 + 3 = 19

02. (C) 707007

03. (C) 1000 + 2000 − 1423

3000 − 1423 = 1577

04. (D) 1489 × 48 = 71472

71472 − 48 = 71424

05. (C) In the number 4521 where first digit and last digit are interchanged then the number is 1524.

1524 ÷ 4 = 381

06. (B) AB and FE

07. (C) 101 × 101 = 10201

Required number = 10201 − 10101 = 100

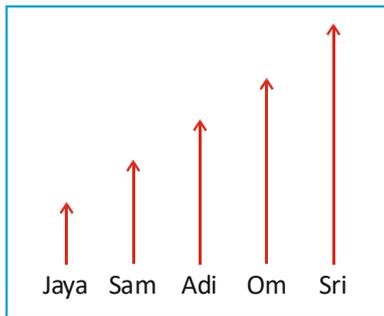|		
08.	(B)	40 = 1 × 40

08. (B) 40 = 1 × 40
            2 × 20
            4 × 10
            5 × 8

40 is the least 2-digit number that has 2, 5 and 8 as factors.

09. (C) Area of A = 4 square units

Area of B = 8 square units

Area of C = 2 square units

Area of D = 5 square units

10. (D) $\frac{1}{2} \times 4.1\,l = \frac{1}{2} \times 4120\,ml$

$= 2060\,ml$

$\neq 2600\,ml$

11. (C) Total distance covered by Ajay between A and D

= 23 km 43 m + 12 km 27 m + 16 km 342 m

= 51 km 412 m

Total distance covered by Vijay between A and D

= 5 km 247 m + 16 km 37 m

+ 13 km 73 m = 34 km 357 m

The additional distance covered by Ajay than Vijay is

51 km 412 m – 34 km 357 m

= 17 km 55 m

12. (A) The product of two even numbers is an even number. An even number can be divided into two equal parts with no remainder.

13. (C) First class will leave at 9: 45

Second class will leave at 10: 15

Third class will leave at 10: 45

14. (B)

Option (A) : 51 + 3 = 564 (not multiple of 8)

Option (B) : 53 + 3 = 56 (multiple of 8) and

53 – 3 = 49 (multiple of 7)

Option (C) : 48 + 3 = 51 (not multiple of 8)

Option (D) : 42 + 3 = 45 (not multiple of 8)

15. (B) The English Alphabets which have zero lines of symmetry are F, G, J, L, N, P, Q, R, S and Z.

16. (B) $\frac{2}{3} = 0.666...$

0.6 lies between 0.5 and 0.75

i.e. $\frac{1}{2}$ and $\frac{3}{4}$

In the given figure,

$\frac{2}{3}$ lies between 🟢 & 🔺

17. (C) 8(10 + 2 + 7 + 9)

= 224 cm

18. (D) 100 × 100 = 10000, but in 1 lakh there will be 5 zeroes.

19. (B) Red + Yellow = 3314 + 5131 = 8445 = 8450

(when rounding off to nearest tens)

Yellow + Orange = 5131 + 4136 = 9267

= 9270

(when rounding off to nearest tens)

Red + Orange = 3314 + 4136 = 7450

Here, 9270 > 8500

20. (B) Prime factors of 216 = 2 × 2 × 2 × 3 × 3 × 3

21. (A) 1 unit = 24 litres

4 units = 4 × 24 litres

= 96 litres

22. (D) When 7 pencil's are tranfered.

Box Q will have 9 more penecils than Box P.

23. (B) (2000 – 1000) mm = 1000 mm or 100 cm

24. (A) Divisor = Quotient × dividend + R.

= 5 × 6 = 30

Hence, the number is 30.

When 30 is divided by 30, the quotient is 1.

25. (D) CV = 105 ; CI = 101 ; LI = 51

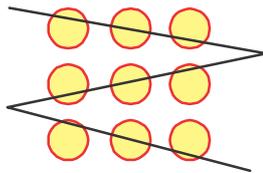VC is meaningless, there is no value of VC.

GENERAL SCIENCE

26. (D) Waxy coating on the surface of the leaves of aquatic plants is for respiration.

27. (D) Fossil fuels are a non-renewable source of energy. Rest of the given energy sources are renewable.

28. (A) When clothes dry in air, water present in the clothes gets converted into water vapour. This process is known as evaporation.

29. (B) The correct sequence of metamorphic changes in a butterfly are – Egg – caterpillar – pupa – adult butterfly.

30. (B) Animals go for winter sleep so as to avoid extreme cold conditions and scarcity of food.

31. (B) Souring of milk is a chemical change.

32. (C) Intermolecular force is least in gases and maximum in solids.

33. (D) The correct matching is
P-(iii); Q-(i); R-(iv); S-(ii)

Kidneys - Nitrogenous waste

Brain - Control and coordination

Tongue - Taste buds

Ear - Sense of hearing

34. (D) Earth, Moon and Jupiter are parts of solar system. Pole star is not a part of the solar system.

35. (D) Burning of wood, respiration and flying of aeroplane, all require presence of air.

36. (A) The amount of nutrients in soil is known as soil fertility.

37. (C) Camouflage is a method of blending by animals to protect themselves from predators.

38. (D) The given picture shows a molar tooth.

39. (C) Glucose gives instant energy. That is why, athletes take glucose just before the race begins.

40. (A) When we place rocks and seeds, only the seeds grow and give rise to a new plant, whereas the rocks remain the same because rocks are non-living.

41. (D) In the respiratory system, oxygen follows the following path :
Nose→ Windpipe → Lungs → Blood

42. (C) Growing of trees and plants maintains the balance of gases in the air.

43. (A) The rate of evaporation of water is faster in dish 'P'.

44. (B) The water cycle is important as it helps in recycling of water from the earth to the sky.

45. (C) The Sun is the source of energy for the water cycle.

46. (Delete)

47. (C) Stretching of a rubber band is an example of a pulling force.

48. (A) Light and heat energies are obtained from the Sun. Sound it not obtained from the Sun.

49. (D) Options (A), (B), (C) & (D) on unscrambing give the words FROCK, SKIRT, SHORTS and SWEATER respectively. Sweater is worn in winters.

50. (C) The Earth takes about 365 days to complete one revolution around the Sun. Revolution of the Earth causes changes in the seasons.

51. (D) Leaf helps the plant to take in air while breathing.

52. (C) The given characteristic features belongs to wading birds.

53. (B) In lemonade, along with lemon juice and water, sugar is present, which is an energy giving food and gives instant energy. Hot water or chilled water has no nutrients. Hence, they cannot give instant energy.

54. (C) X mends old and torn shoes is a cobbler. Y makes houses and buildings is a mason. Z stitches clothes is a tailor.

55. (B) Sushmitha will use bus or car to visit her friend living in the same city. She can visit her cousins living in USA by an aeroplane. She can visit her grandparents living in Delhi by train or bus.

CRITICAL THINKING

56. (A)

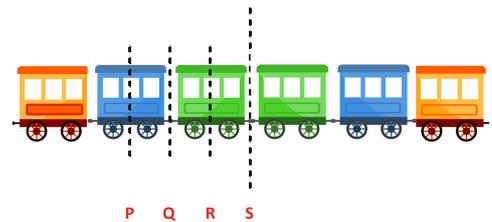Jaya Sam Adi Om Sri

57. (A)

58. (D) A standard chessboard has 64 squares, and they alternate between white and black. If you remove 18 squares, you are taking away both white and black squares.

Since each square has a pair (one white and one black next to it), removing 18 squares means you are removing 9 pairs.

Now, because each pair has one white and one black square, the alternating pattern of colors on the remaining squares doesn't change. So, after removing 18 squares, you still have 46 squares of alternating colors left on the chessboard.

Therefore, the answer is 46 squares of alternating colors remain on the board.

59. (D)

P Q R S

60. (C) The handle of the door is provided at the free end because larger the distance from the hinge, lesser will be force required to open the door.

═══ *The End* ═══